High Valley Basin

- Groundwater Basin Number: 5-16
- County: Lake
- Surface Area: 2,360 acres (4 square miles)

Basin Boundaries and Hydrology

High Valley Basin is a small, poorly drained, isolated valley about 2 miles north of Clearlake Oaks in the Coast Ranges. It is nearly a closed basin, with the only outlet being the narrow gorge of Schindler Creek in the southeast corner. The valley consists of a flat alluvial plain about 3 miles long and 1 mile wide, surrounded by a narrow band of high, steeply sloping hills. The contact between the Jurassic-Cretaceous Franciscan Formation bounding the valley alluvium generally defines the basin boundary to the north, west, and south. Baldy Mountain is located to the west and High Valley Ridge boarders the valley to the north. Quaternary Holocene volcanics border the basin to the east (Jennings 1969). Annual precipitation in the valley ranges from 27- to 35-inches, decreasing to the east.

Hydrogeologic Information

Water-Bearing Formations

The aquifer system in High Valley Basin is comprised primarily of Quaternary alluvial deposits and Holocene volcanic deposits. The alluvium overlies a confined volcanic aquifer of Holocene age. Below the volcanic aquifer are older alluvial deposits about which there is little information.

Quaternary Alluvium. The Quaternary alluvium consists of up to 100 feet of fine grained lake deposits which confine an underlying volcanic aquifer (USGS 1955). The permeability of the alluvium is generally low. The central part of the alluvial plain is bordered by alluvial fans containing coarser grained material.

Holocene Volcanics. Holocene volcanics likely originated from the vicinity of Round Mountain located to the east. These volcanics, which also dammed the ancestral valley, were later buried in the central portion of the valley by fine-grained alluvium reducing potential recharge on the valley floor. Most irrigation wells in the valley tap the fine-grained alluvium. Irrigation wells drilled in the volcanic aquifer system were initially productive, but after a few seasons of operation, production was reduced. One well was reported to yield about 1,000 gpm, yielding only about 200 gpm after 4 years of production (DWR 1976). Thickness of the formation is unknown.
The source of recharge in High Valley Basin is from precipitation within the drainage area. Infiltration likely occurs at the perimeter of the valley in the alluvial fans.

Groundwater Level Trends

Analysis incomplete.

Groundwater Storage

Groundwater Storage Capacity. Information with respect to the hydrogeology of the basin is limited. Little is known in regards to the lithology of the deeper alluvium and it's believed that the extents of the alluvium may be several miles to the east underneath the younger volcanics. DWR (1960) estimates the storage capacity to be 9,000 acre-feet for a saturated depth interval of 10 to 100-feet. Usable storage capacity is estimated to be 900 acre-feet.

Groundwater Budget (Type B)

Estimates of groundwater extraction for the High Valley Basin are based on a survey conducted by the California Department of Water Resources in 1995. The survey included land use and sources of water. Estimates of groundwater extraction for agricultural and municipal/industrial uses are 78- and 210-acre-feet respectively. Deep percolation from applied water is estimated to be 33 acre-feet.

Groundwater Quality

Characterization. Groundwater in the basin consists of magnesium bicarbonate type waters. Total dissolved solids (TDS) range from 480- to 745-mg/L, averaging 598 mg/L (DWR unpublished data).

Impairments. Impairments to water quality include locally high ammonia , phosphorus, chloride, iron, and manganese. High boron may be an issue for agricultural uses.

Water Quality in Public Supply Wells

Constituent Group[1]	Number of wells sampled[2]	Number of wells with a concentration above an MCL[3]
Inorganics – Primary	1	0
Radiological	0	0
Nitrates	1	0
Pesticides	0	0
VOCs and SVOCs	0	
Inorganics – Secondary	1	1

[1] A description of each member in the constituent groups and a generalized discussion of the relevance of these groups are included in *California's Groundwater – Bulletin 118* by DWR (2003).
[2] Represents distinct number of wells sampled as required under DHS Title 22 program from 1994 through 2000.
[3] Each well reported with a concentration above an MCL was confirmed with a second detection above an MCL. This information is intended as an indicator of the types of activities that cause contamination in a given basin. It represents the water quality at the sample location. It does not indicate the water quality delivered to the consumer. More detailed drinking water quality information can be obtained from the local water purveyor and its annual Consumer Confidence Report.

Well Characteristics

	Well yields (gal/min)	
Municipal/Irrigation	Range: 3 – 100	Average: 37 (9 Well Completion Reports)
	Total depths (ft)	
Domestic	Range: 22 – 230	Average: 78 (86 Well Completion Reports)
Municipal/Irrigation	Range: 26 – 340	Average: 113 (17 Well Completion Reports)

Active Monitoring Data

Agency	Parameter	Number of wells /measurement frequency
DWR	Groundwater Levels	1 well measured semi-annually.
Lake County	Groundwater levels	4 wells measured semi-annually.
DWR	Miscellaneous water quality	2 wells biennially
Department of Health Services and cooperators	Title 22 water quality	0

Basin Management

Groundwater management:	Lake County adopted a groundwater management ordinance in 1999.
Water agencies	
Public	Clearlake Oaks CWD
Private	

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Errata

Changes made to the basin description will be noted here.